

What is claimed is:

1. A medical image reading system comprising  
a plurality of diagnostic clients provided with an image  
output means which outputs image data to be examined as a  
5 visible image, and a diagnosis input means for inputting  
individual diagnoses obtained on the basis of visible images,  
at least one management client provided with a result  
output means for outputting result of examination obtained on  
the basis of the individual diagnoses, and

10 a server provided with an image storage means and a result  
storage means which are connected to the diagnostic clients  
and the management client by way of a network, the image storage  
means storing image data to be examined and the result storage  
means storing results of examination obtained on the basis of  
15 the individual diagnoses with the results of examination  
related to the image data, wherein

each of the diagnostic clients receives the image data  
to be examined from the server by way of a network, outputs  
the image data to be examined through the image output means  
20 and sends individual diagnoses input through the diagnosis  
input means for the respective images represented by the image  
data to be examined to the server by way of the network,

the server causes the result storage means to store  
results of examination obtained on the basis of the individual  
25 diagnoses sent from the respective diagnostic clients, and  
the management client receives the result of examination

from the server by way of the network and causes the result output means to output the same.

2. A medical image reading system as defined in Claim 1 in which said server is further provided with an informing means which, when the server receives a predetermined number of said diagnoses, sends information to the effect that the server has received a predetermined number of said diagnoses to the management client and the management client is provided with an information output means which receives the information and outputs the same.

3. A medical image reading system as defined in Claim 1 in which said server further comprises an automatic determination means which automatically makes examination for a given piece of image data on the basis of all or part of the individual diagnoses received and outputs result of examination.

4. A medical image reading system as defined in Claim 3 in which, each of the diagnostic clients is provided with a function of sending data on the doctor in charge together with the relevant individual diagnosis to the server so that the automatic determination means makes examination weighting the individual diagnoses according to the doctor in charge.

5. A diagnostic client for a medical image reading system defined in Claim 1 which client is connected by way of a network to a server provided with an image storage means which stores image data to be examined and a result storage means

which stores results of examination obtained on the basis of the individual diagnoses, and comprises

a data receiving means which receives the image data to be examined from the server,

5 an image output means which outputs the image data to be examined as a visible image,

a diagnosis input means for inputting individual diagnoses obtained on the basis of visible images, and

10 a data sending means which sends the individual diagnoses input through the diagnosis input means to the server.

6. A diagnostic client as defined in Claim 5 in which said data sending means sends data on the doctor in charge together with the relevant individual diagnosis to the server.

7. A management client for a medical image reading  
15 system defined in Claim 1 which client is connected by way of a network to a server provided with an image storage means which stores image data to be examined and a result storage means which stores results of examination obtained on the basis of the individual diagnoses, and comprises

20 a data receiving means which receives results of examination from the server, and

a result output means which outputs the results of examination received by the data receiving means.

8. The management client as defined in Claim 7 in which

25 said data receiving means is further provided with an information output means which receives information to the

effect that the server has received a predetermined number of said diagnoses from the server and outputs the same.

9. A server for a medical image reading system defined in Claim 1 which server is connected by way of a network to a plurality of diagnostic client and at least one management client and comprises

an image storage means which stores image data to be examined,

a data sending means which sends the image data stored in the image storage means to the diagnostic clients,

a data receiving means which receives from the diagnostic clients individual diagnoses obtained on the basis of the image data to be examined, and

a result storage means which stores results of examination obtained on the basis of the individual diagnoses with the results of examination related to the image data to be examined, wherein

said data sending means is further provided with a function of sending to the management clients the results of examination stored in the result storage means.

10. A server as defined in Claim 9 in which said data sending means is further provided an information sending means which sends to the management client information to the effect that the server has received a predetermined number of said diagnoses.

11. A server as defined in Claim 9 in which said data

5 sending means is further provided with an automatic determination means which automatically makes examination for a given piece of image data on the basis of all or part of the individual diagnoses received and outputs result of examination.

12. A server as defined in Claim 11 in which said data receiving means receives data on the doctor in charge together with the relevant individual diagnosis from the diagnostic client, and

10 the automatic determination means makes examination weighting the individual diagnoses according to the doctor in charge.

13. A program for causing a computer to execute processing of sending image data to be examined stored  
15 in an image storage means to a diagnostic client,

processing of receiving individual diagnoses obtained on the basis of the image data to be examined sent from the diagnostic client,

20 processing of storing in a result storage means results of examination obtained on the basis of the individual diagnoses with the results of examination related to the image data to be examined, and

processing of sending the results of examination stored in the result storage means to the management client.

25 14. A program as defined in Claim 13 for causing a computer to further execute processing of sending to the

management client information to the effect that a predetermined number of said diagnoses has been input.

15. A program as defined in Claim 13 for causing a computer to further execute processing of automatically making examination for a given piece of image data on the basis of all or part of the individual diagnoses received.

16. A program as defined in Claim 15 in which the automatic examination is made weighting the individual diagnoses on the basis of data on the doctor in charge sent from the diagnostic client together with the individual diagnoses.

17. A medical image reading method comprising the steps of storing image data to be examined in a server which is provided at a place remote from a plurality of diagnostic clients and connected to the diagnostic clients by way of a network,

causing each of the diagnostic clients to receive a desired piece of image data out of the image data stored in the server and to output the desired piece of image data as a visible image,

inputting individual diagnoses obtained on the basis of the output visible image through the diagnostic clients,

sending the individual diagnoses to the server,

storing in the server results of examination obtained on the basis of the individual diagnoses sent thereto with the

results of examination related to the pieces of image data,  
and

causing a management client to receive the result of  
examination for a desired piece of image data stored in the  
5 server and to output the same.

18. A medical image reading method as defined in Claim  
17 further comprising the step of

causing the server, when the server receives all the  
diagnoses, to send information to the effect that the server  
10 has received all of said diagnoses to the management client.

19. A medical image reading method as defined in Claim  
17 in which the result of examination is weighted by individual  
diagnoses..

20. A centralized medical image storing system  
15 comprising

a plurality of clients each of which is provided in a  
medical facility, provided with an image input means for  
inputting medical image data obtained by a digital image data  
generating apparatus, and transfers medical image data by way  
20 of a network, and

a server which is connected to the clients by way of the  
network and provided with an image storage means and an online  
accounting means, the image storage means storing medical  
image data sent from the clients and the online accounting means  
25 automatically outputting accounting information for medical  
facilities,

wherein the improvement comprises that

each of the clients is provided with a function of sending a request for receiving a desired piece of medical image data out of image data stored in the image storage means to the server, the server is provided with a function of sending the desired piece of image data to the client which sends the request in response to receipt of the request, and each of the clients is provided with an image output means which outputs as a visible image the desired image data sent from the server.

21. A centralized medical image storing system as defined in Claim 20 in which the image output means further outputs as a visible image the medical image data input through the image input means.

22. A centralized medical image storing system as defined in Claim 20 in which the accounting information includes storage cost for the medical image data which the medical facility holds in possession.

23. A centralized medical image storing system as defined in Claim 20 in which the digital image generating apparatus and the client are rented to the medical facility and the accounting information includes a rent for the digital image generating apparatus and the client.

24. A centralized medical image storing system as defined in Claim 20 in which the accounting information includes a data fee imposed on the medical image data used through the client.



25. A centralized medical image storing system as defined in Claim 20 in which the storage means comprises a high-speed storage means and a low-speed storage mean and the high-speed storage means can transfer the medical image data stored therein to the client at a high speed while the low-speed storage means can transfer the medical image data stored therein to the client at a low speed.

26. A client for a centralized medical image storing system defined in Claim 20 comprising

an image input means for inputting medical image data obtained by a digital image data generating apparatus,

a first data sending means which transfers the medical image data input through the image input means to a sever by way of a network,

a second data sending means which sends a request for receiving a desired piece of medical image data out of image data stored in the server to the server,

a data receiving means which receives from the sever the desired piece of medical image data as based on the request sent from the second data transfer means, and

an image output means which outputs as a visible image the desired piece of medical image data received by the data receiving means.

27. A client as defined in Claim 26 in which the image output means further outputs as a visible image the medical image data input through the image input means.

28. A server for a centralized medical image storing system defined in Claim 20 comprising

a first data receiving means which receives medical image data from a plurality of clients by way of a network,

5 a storage means which stores the medical image data received by the first data receiving means,

a second data receiving means which receives a request for receiving a desired piece of medical image data out of image data stored in the server from the clients,

10 a data sending means which sends to the clients the desired piece of medical image data as based on the request received by the second data receiving means, and

an online accounting means which automatically outputs accounting information for medical facilities equipped with the clients.

29. A server as defined in Claim 28 in which the accounting information includes storage cost for the medical image data which the medical facility holds in possession.

30. A server as defined in Claim 28 in which the digital image generating apparatus and the client are rented to the medical facility and the accounting information includes a rent for the digital image generating apparatus and the client.

31. A server as defined in Claim 28 in which the accounting information includes a data fee imposed on the medical image data used through the client.

32. A server as defined in Claim 28 in which the storage

means comprises a high-speed storage means and a low-speed storage mean and the high-speed storage means can transfer the medical image data stored therein to the client at a high speed while the low-speed storage means can transfer the medical image data stored therein to the client at a low speed.

33. A program for causing a computer to execute processing of sending medical image data to a sever by way of a network,

processing of sending a request for receiving a desired piece of medical image data out of image data stored in the server to the server, and

processing of outputting as a visible image the desired piece of medical image data.

34. A program for causing a computer to execute processing of receiving medical image data from a plurality of clients by way of a network,

processing of storing the medical image data received,

processing of receiving a request for receiving a desired piece of medical image data out of image data stored in the server from the clients,

processing of sending to the clients the desired piece of medical image data as based on the request received, and

processing of automatically outputting accounting information for medical facilities equipped with the clients.

35. A centralized medical image storing method comprising the steps of

inputting medical image data obtained by a digital image data generating apparatus through a plurality of clients each of which is provided in a medical facility, transferring the medical image data to a server by way of a network,

5 storing the medical image data in the server,

causing the clients to send a request for receiving a desired piece of medical image data out of image data stored in the server to the server,

causing the server to send the desired piece of image data to the client which sends the request in response to receipt of the request,

causing the clients to output as a visible image the desired image data sent from the server, and

causing the server to automatically output accounting information for medical facilities.

36. A method as defined in Claim 35 in which the accounting information includes storage cost for the medical image data which the medical facility holds in possession and is stored in the server.

20 37. A method as defined in Claim 35 in which the digital image generating apparatus and/or the client are rented to the medical facility and the accounting information includes a rent for the digital image generating apparatus and/or the client.

25 38. A method as defined in Claim 35 in which the accounting information includes a data fee imposed on the

medical image data which is stored in the server and used through the client.

39. A medical information storing and accounting system comprising

5 a plurality of clients each of which is provided in a medical facility, receives medical image data by way of a network and is provided with an image output means which outputs as a visible image the medical image data received, and

10 a server which is connected to the clients by way of the network and provided with an image storage means which stores medical image data and an online accounting means which automatically outputs accounting information for medical facilities,

wherein the improvement comprises that

15 each of the clients is provided with a function of sending a request for receiving medical image data related to a predetermined examination out of image data stored in the image storage means to the server,

20 the server is provided with a function of sending, to the client which sends the request, image data as requested by the client, and

the accounting information output by the online accounting means includes a data fee determined examination by examination.

25 40. A medical information storing and accounting system as defined in Claim 39 in which each of the clients is arranged

to send, to the server, purpose information representing the purpose of examination together with the request for receiving medical image data related to the predetermined examination, and

5           the server is arranged to send to the client medical image data related to the predetermined examination within an available range determined purpose by purpose on the basis of the purpose information with the data fee determined by purpose of examination.

10           41. A medical information storing and accounting system as defined in Claim 39 in which the available range is a range related to one or more of the kind of images, the pixel density of images and image processing right.

15           42. A medical information storing and accounting system as defined in Claim 39 in which

the server further comprises a report storage means which stores a report on the medical image data,

each of the clients further comprises a report output means which receives a report stored in the report storage means and outputs it, and

20           the server sends, to the client, image data as requested by the client together with the report on the medical image data.

25           43. A medical information storing and accounting system as defined in Claim 39 in which

the server further comprise a report storage means which

stores a report on the medical image data,

each of the clients further comprises a report output means which receives a report stored in the report storage means and outputs it, a report input means for inputting a report and a function of sending, to the sever, the report input through the report input means,

the server sends, to the client, image data as requested by the client together with the report on the medical image data, and

the available range is a range related to one or more of the kind of images, the pixel density of images, image processing right and report input right.

44. A client for a medical information storing and accounting system defined in Claim 39 comprising

a data sending means which sends a request for receiving medical image data related to a predetermined examination out of image data stored in a server connected thereto by way of a network,

a data receiving means which receives, from the server, medical image data as requested by the request for receiving medical image data sent by the data sending means, and

an image output means which outputs as a visible image the medical image data received by the data receiving means.

45. A client as defined in Claim 44 in which the data sending means sends, to the server, purpose information representing the purpose of examination together with the

request for receiving medical image data related to the predetermined examination, and

the data receiving means receives image data related to the predetermined examination within an available range  
5 determined purpose by purpose on the basis of the purpose information.

46. A client as defined in Claim 44 further comprising a second data receiving means which receives a report on the medical image data stored in the server, and

10 a report output means which outputs the report received by the second data receiving means.

47. A client as defined Claim 44 further comprising a report input means for inputting said report and a function of sending, to the sever, the report input  
15 through the report input means.

48. A server for a medical information storing and accounting system defined in Claim 39 comprising

an image storage means which stores medical image data,  
a data receiving means which receives a request for  
20 receiving medical image data related to a predetermined examination out of image data stored in the image storage means from a client connected thereto by way of a network,

a data sending means which sends, to the client, medical image data as requested by the request for receiving medical  
25 image data received by the data receiving means, and

an online accounting means which automatically outputs



accounting information for the medical facility equipped with the client, the accounting information including a data fee determined examination by examination.

49. A server as defined in Claim 48 in which the data sending means sends medical image data within an available range determined purpose by purpose on the basis of the purpose information which represents the purpose of examination and is sent from the client together with the request for receiving medical image data related to the predetermined examination with the data fee determined by purpose of examination.

50. A server as defined in Claim 49 in which the available range is a range related to one or more of the kind of images, the pixel density of images and image processing right.

51. A server as defined in Claim 49 which further comprises a report storage means which stores a report on the medical image data, and

sends, to the client, image data as requested by the request for receiving medical image data together with the report on the medical image data.

52. A sever as defined in Claim 49 which further comprises a report storage means which stores a report on the medical image data, and sends, to the client, image data as requested by the request for receiving medical image data together with the report on the medical image data, and in which the available range is a range related to one or more of the

kind of images, the pixel density of images, image processing right and report input right.

53. A program for causing a computer to execute processing of sending a request for receiving medical image data related to a predetermined examination out of image data stored in a sever by way of a network to the server, processing of receiving medical image data as requested by the request for receiving medical image data, and processing of outputting as a visible image the medical image data received.

54. A program as defined in Claim 53 for causing a computer to further execute processing of sending, to the server, purpose information representing the purpose of examination together with the request for receiving medical image data related to the predetermined examination, and

processing of receiving medical image data related to the predetermined examination within an available range determined purpose by purpose on the basis of the purpose information.

55. A program for causing a computer to execute processing of storing medical image data, processing of receiving a request for receiving medical image data related to a predetermined examination out of image data stored in the image storage means from a client connected thereto by way of a network,

processing of sending, to the client, medical image data  
as requested by the request for receiving medical image data  
received by the data receiving means, and

processing of automatically outputting accounting  
5 information for the medical facility equipped with the client,  
the accounting information including a data fee determined  
examination by examination.

56. A program as defined in Claim 55 for causing a  
computer to further execute

10 processing of sending medical image data related to the  
predetermined examination within an available range  
determined purpose by purpose on the basis of purpose  
information sent from the client together with the request for  
receiving medical image data, and

15 processing of determining the data fee examination by  
examination.

57. A medical information storing and accounting method  
comprising the steps of

20 storing image data in a server connected by way of a  
network to a plurality of clients each of which is provided  
in a medical facility,

sending, from the server to the client which sends a  
request for receiving medical image data related to a  
predetermined examination out of image data stored in the  
25 server, image data as requested by the client,

outputting through the client the medical image data sent

by the server, and

causing the server to automatically output accounting information for medical facilities, the accounting information including a data fee determined examination by examination.

58. A method as defined in Claim 57 further comprising the steps of

determining an available range purpose by purpose, and determining the data fee examination by examination and purpose by purpose.

59. A method as defined in Claim 57 further comprising the steps of

storing image reports on the medical image data in the server,

sending, to the client, medical image data as requested by the client together with the report on the medical image data, and

outputting, from the client, medical image data as requested by the client together with the report on the medical image data.

60. A medical information output system comprising a plurality of clients each of which is equipped in a medical facility and is provided with an image output means which receives medical image data by way of a network and outputs as a visible image the medical image data received, an electronic patient's chart storage means which stores data

on the patient's chart, and an electronic patient's chart output means which outputs data on the patient's chart stored in the electronic patient's chart storage means, and

a server which is connected to the clients by way of the network and is provided with an image storage means which stores medical image data, wherein the improvement comprises that

each of the clients is provided with a liaison output means which causes the electronic patient's chart output means and the image output means to output in liaison with each other, and the liaison output means causes the electronic patient's chart output means and the image output means to output data on the patient's chart and medical image data corresponding to the patient's chart by the use of liaison information which relates the patient's chart and the medical image data with each other.

61. A medical information output system as defined in Claim 60 in which

each of the clients is provided with a function of sending a request for receiving medical image data out of image data stored in the image storage means to the server,

the server is provided with a function of sending image data to the client which sends the request in response to receipt of the request, and

the liaison output means selects medical image data on the basis of the patient's chart output from the electronic patient's chart output means by the use of liaison information,

sends a request for receiving selected medical image data to the server and causes the image output means to output the medical image data sent from the server upon receipt of the request.

5           62. A medical information output system as defined in Claim 60 in which

each of the clients is provided with a function of sending a request for receiving medical image data out of image data stored in the image storage means to the server,

10           the server is provided with a function of sending image data to the client which sends the request in response to receipt of the request, and

the liaison output means selects patient's chart on the basis of the medical image data received from the server by the use of liaison information, and causes the electronic patient's chart output means to output the selected patient's chart.

15           63. A medical information output system as defined in Claim 60 in which

20           each of the clients is provided with a function of sending a request for receiving medical image data out of image data stored in the image storage means to the server,

the server is provided with a function of sending image data to the client which sends the request in response to receipt of the request, and

25           the liaison output means is provided with a function of

selecting medical image data on the basis of the patient's chart  
output from the electronic patient's chart output means by the  
use of liaison information, sending a request for receiving  
selected medical image data to the server and causing the image  
5 output means to output the medical image data sent from the  
server upon receipt of the request and a function of selecting  
patient's chart on the basis of the medical image data received  
from the server by the use of liaison information and causing  
the electronic patient's chart output means to output the  
10 selected patient's chart.

64. A client for a medical information output system  
as defined in Claim 60 comprising

an electronic patient's chart storage means which stores  
data on the patient's chart,

15 an electronic patient's chart output means which outputs  
data on the patient's chart stored in the electronic patient's  
chart storage means,

a data sending means which sends a request for receiving  
medical image data out of image data stored in a server  
20 connected thereto by way of a network,

a data receiving means which receives, from the server,  
medical image data as requested by the request for receiving  
medical image data sent by the data sending means,

an image output means which outputs as a visible image  
25 the medical image data received by the data receiving means,  
and

a liaison output means which causes the electronic patient's chart output means and the image output means to output in liaison with each other, wherein

the liaison output means selects medical image data on the basis of the patient's chart output from the electronic patient's chart output means by the use of liaison information, causes the data sending means to send a request for receiving selected medical image data to the server and causes the image output means to output the medical image data sent from the server upon receipt of the request.

65. A client for a medical information output system as defined in Claim 60 comprising

an electronic patient's chart storage means which stores data on the patient's chart,

an electronic patient's chart output means which outputs data on the patient's chart stored in the electronic patient's chart storage means,

a data sending means which sends a request for receiving medical image data out of image data stored in a server connected thereto by way of a network,

a data receiving means which receives, from the server, medical image data as requested by the request for receiving medical image data sent by the data sending means,

an image output means which outputs as a visible image the medical image data received by the data receiving means, and



a liaison output means which causes the electronic patient's chart output means and the image output means to output in liaison with each other, wherein

the liaison output means selects patient's chart on the basis of the medical image data received from the server by the use of liaison information and causes the electronic patient's chart output means to output the selected patient's chart.

66. A client for a medical information output system as defined in Claim 60 comprising

an electronic patient's chart storage means which stores data on the patient's chart, an electronic patient's chart output means which outputs data on the patient's chart stored in the electronic patient's chart storage means, a data sending means which sends a request for receiving medical image data out of image data stored in a server connected thereto by way of a network, a data receiving means which receives, from the server, medical image data as requested by the request for receiving medical image data sent by the data sending means, an image output means which outputs as a visible image the medical image data received by the data receiving means, and a liaison output means which causes the electronic patient's chart output means and the image output means to output in liaison with each other, wherein

the liaison output means is provided with a function of selecting medical image data on the basis of the patient's chart

output from the electronic patient's chart output means by the use of liaison information, sending a request for receiving selected medical image data to the server and causing the image output means to output the medical image data sent from the server upon receipt of the request and a function of selecting patient's chart on the basis of the medical image data received from the server by the use of liaison information and causing the electronic patient's chart output means to output the selected patient's chart.

67. A server for a medical information output system as defined in Claim 60 comprising

an image storage means which stores medical image data,  
a data receiving means which receives a request for receiving medical image data related to a predetermined examination out of image data stored in the image storage means from a client connected thereto by way of a network, and  
a data sending means which sends, to the client, medical image data as requested by the request for receiving medical image data received by the data receiving means.

68. A program for causing a computer to execute processing of outputting data on the patient's chart stored in a client,

processing of selecting medical image data on the basis of the patient's chart output from the electronic patient's chart output means by the use of liaison information,  
processing of sending a request for receiving selected

medical image data to a server connected thereto by way of a network,

processing of receiving, from the server, medical image data as requested by the request for receiving medical image data, and

processing outputting the medical image data sent from the server.

69. A program for causing a computer to execute processing of sending a request for receiving medical image data out of image data stored in a server connected thereto by way of a network,

processing of receiving, from the server, medical image data as requested by the request,

processing of outputting as a visible image the medical image data received,

processing of selecting patient's chart on the basis of the medical image data received from the server by the use of liaison information, and

outputting the selected patient's chart.

70. A program for causing a computer to execute

processing of storing medical image data,

processing of receiving a request for receiving medical image data out of image data stored in the image storage means from a client connected thereto by way of a network, and

processing sending, to the client, medical image data as requested by the request for receiving medical image data

received.

71. A medical information output method comprising the steps of

storing data on patient's charts in each of clients  
5 equipped in medical facilities,

storing medical image data related to the patient's charts in a server connected to the clients by way of a network, and

causing each of the clients to automatically receive  
10 medical image data related to data on a patient's chart to be output and to output the medical image data together with the patient's chart.

72. A medical information output method comprising the steps of

15 storing data on patient's charts in each of clients equipped in medical facilities,

storing medical image data related to the patient's charts in a server connected to the clients by way of a network, and

20 causing each of the clients to automatically select data on a patient's chart related to medical image data to be output and to output the selected patient's chart together with the medical image data.